

Response After Final
Application No. 09/991,749
Attorney Docket No. 011503

REMARKS

Claims 1 – 3 and 5-10 are pending in the present application. By this Amendment, claims 1 and 9 have each been amended. No new matter has been added. It is respectfully submitted that this Amendment is fully responsive to the Office Action dated November 95, 2006.

As to the Merits:

The Examiner maintains the following rejections:

claims 1-2 and 5-10 were rejected as being unpatentable over Yanai (JP 05-046121 U) in view of Shiga et al. (US 6,240,019 B1 hereinafter "Shiga");

claim 3 was rejected as being unpatentable over Yanai in view of Shiga, and further in view of Yanagibori (US 4,919,640);

claim 4 was rejected as being unpatentable over Yanai in view of Shiga, and further in view of Ogita (US 4,225,823); and

claims 1 and 9 were rejected as being unpatentable over Yanai in view of Ryu (JP 06-203584 A).

Each of these rejections is respectfully traversed.

Independent claim 1, as amended, now calls for *the booster circuit includes, a coil coupled to a power source; a switching element coupled to the coil for periodically conducting a DC current flowing through the coil to a ground to change the DC current; a zener diode coupled to the coil for clamping an electromotive force induced in the coil in accordance with a change in the DC current flowing through the coil to a predetermined voltage; and a capacitor for smoothing the clamped voltage to generate a boosted-voltage, a non-volatile memory for storing the channel selection information in response to a predetermined write voltage, wherein the boosted voltage of the booster circuit is utilized as the predetermined write voltage, wherein the capacitor is coupled between the non-volatile memory and a node between the zener diode and the voltage controlled oscillator.* Independent claim 9, as amended, now includes similar features.

For example, as discussed on pages 9 and 10 of the present specification:

Here, the current flowing through the coil 32 is suddenly changed by periodically turning ON/OFF a transistor 35, which serves as a switching element, to periodically conduct the DC current flowing through the coil 32 to the ground. Specifically, the transistor 35 has a source terminal coupled to a node between the coil 32 and a zener diode 33, and a drain terminal of the transistor 35 is grounded. A pulse signal is applied to a gate terminal of the transistor 35 from a pulse generator 36 to synchronously conduct the current flowing through the coil 32 to the ground to cause a sudden change in the current through the coil 32.

For clamping the electromotive force induced in the coil 32 by such a change in current, the zener diode 33 having a breakdown voltage set, for example, at "15 V" is used. The voltage clamped by the zener diode 33 is smoothed by the capacitor 34. In this case, a boosted output (boosted voltage) by the booster circuit 30 is "15 V" corresponding to the breakdown voltage of the zener diode 33. This boosted voltage is added to the output voltage of the low-pass filter 28.

It is respectfully submitted that none of the applied references of Yanai, Shiga, Yanagibori, Ogita and Ruy disclose a capacitor coupled between the non-volatile memory and a node between the zener diode and the voltage controlled oscillator, as now recited in claims 1 and 9.

Yanai discloses a radio receiver that includes a DC-DC converter (booster circuit) 13 for providing the VCO 7 with a control voltage via the low-pass filter 12.

Shiga discloses a booster circuit 7 for providing the drain of a cell transistor with a drain voltage.

Yanagibori discloses a detecting circuit 16 that performs AM-detection from an amplified intermediate frequency signal of the intermediate frequency amplifying circuit 15.

Ogita discloses a high frequency amplifier 85 that includes a transfer switch 81, a diode 89, and a booster amplifier 79 including a MOS transistor 75, a coil 76, a capacitor 77, and a register 78 (see Fig. 5).

Ryu discloses a flash memory device that includes a DC-DC converter (booster circuit) 36 for providing an EEPROM 36 with a high voltage necessary for data writing or erasing.

With regard to features of the booster circuit, the Examiner relies on the secondary reference of Ogita and asserts on page 4, lines 1-12 of the Office Action that such reference discloses:

a coil (76) coupled to a voltage source (+B) which reads on the claimed "power source" (see col. 6, lines 12-15; Fig. 5);
a switching element (81) coupled to the coil (76) for periodically conducting a DC current flowing through the coil to a ground to change the DC current (see col. 6, lines 12-18; Fig. 5);
a zener diode (89) coupled to the coil (76) for clamping an electromotive force induced in the coil (76) in accordance with a change in the DC current flowing through the coil (76) to a predetermined voltage (see col. 6, lines 12-31; Fig. 5), where the clamping of the EMF would be inherent; and a capacitor (77) coupled to the zener diode (89) for smoothing the clamped voltage to generate a boosted voltage (see col. 6, lines 24-31; Fig. 5), where the signal flows through the capacitor in which smoothing of the voltage would be inherent.

As previously submitted, while the switching element 81 of Ogita may be coupled to the coil 76, the switching element 81 fails to periodically conduct a DC current flowing through the coil 76 to a ground to change the DC current, as required by claim 1. That is, in Fig. 5, Ogita fails to disclose that switching element 81 conducts the DC current through coil 76 to a ground. In another words, the Examiner has failed to establish that switching element 81 is able to conduct DC current which flows through the coil 76 to a ground in a periodical fashion, as called for in claim 1.

In addition, it is submitted that the boost amplifier circuit 79 of Fig. 5 of Ogita fails to include a zener diode coupled to the coil 76 for clamping the electromotive force induced in the

coil 76 in accordance with the change in the DC current flowing through the coil 76 to a predetermined voltage, as called for in claim 1. That is, it is respectfully submitted that diode 89 is not a zener diode and is not directly coupled to coil 76. Instead, diode 89 is only coupled to coil 76 via capacitor 77. As such, it is submitted that diode 89 of Ogita fails to constitute a zener diode coupled to the coil 76 for clamping an electromotive force induced in the coil in accordance with a change in the DC current flowing through the coil 76 to predetermined voltage, as required in claim 1.

In addition, it is submitted that the capacitor 77 of Ogita is coupled between the MOS FET 75 and the diode 89. Accordingly, it is not possible to generate a boosted voltage by smoothing an output of the diode 89

Further, it is submitted that capacitor 77 of Fig. 5 of Ogita is coupled between the MOS FET 75 and the diode 89. Accordingly, it is submitted that it is not possible to generate a boosted voltage by smoothing an output of the diode 89, as further required in claim 1.

More specifically, according to col. 7, lines 30-41 of Ogita:

when the movable contact c of the transfer switch 81 is thrown to its stationary contact a, the booster amplifier 79 is included in the input stage of the high frequency amplifier 85 so that the signal applied to the input terminal 70 from an antenna is preamplified by the booster amplifier and then amplified by the high frequency amplifier so that it is possible to obtain an output having desired magnitudes with a relatively narrow bandwidth.”

In view of the above, it is submitted that the input signal applied to input terminal 70 is preamplified by the booster amplifier 79 when switch 81 is positioned to contact a. In this circuit arrangement, the input signal passes through the capacitor 77 which smoothes the input signal before the input signal reaches diode 89. In another words, the capacitor 77 smoothes the input signal, which is then used to forward bias the diode 89 through resistor 78 so that the diode 89 becomes conductive.

As such, it is respectfully submitted that it is impossible for capacitor 77 to smooth the voltage outputted by the diode 89 to generate a boosted voltage, since as discussed above, the input signal is filtered by the capacitor 77 before it reaches diode 89. In another words, it is submitted that a capacitor would have to be placed after the diode 89 in the preamplifier circuit 79 of Fig. 5 Ogita for such a capacitor to smooth the clamped output voltage of the diode 89 in order to generate a boosted voltage. However, such arrangement is not shown in Fig. 5.

Accordingly, it is submitted that while capacitor 77 may be used as a filter for filtering the input signal from the preamplifier circuit 79 when the stationary contact is switched to contact a, the capacitor 77 simply fails to smooth the clamped output voltage of the diode 89 to generate a boosted voltage.

Accordingly, it is submitted that Ogita and the other applied references fail to disclose or fairly suggest, singly or in combination, the features of claim 1 concerning *the booster circuit includes, a coil coupled to a power source; a switching element coupled to the coil for periodically conducting a DC current flowing through the coil to a ground to change the DC current; a zener diode coupled to the coil for clamping an electromotive force induced in the coil in accordance with a change in the DC current flowing through the coil to a predetermined voltage; and a capacitor for smoothing the clamped voltage to generate a boosted-voltage, a non-volatile memory for storing the channel selection information in response to a predetermined write voltage, wherein the boosted voltage of the booster circuit is utilized as the predetermined write voltage, wherein the capacitor is coupled between the non-volatile memory and a node between the zener diode and the voltage controlled oscillator.*

In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

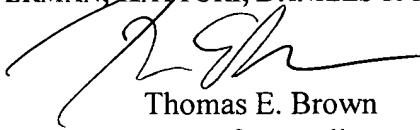
If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

A handwritten signature in black ink, appearing to read 'TEB', is written over the firm name.

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